

CLAIMS

1. An apparatus for controlling an alignment signal transmission in an electronic communication process, comprising:

a counter configured to sequentially modify a count value in accordance with an associated clock signal;

a storage cell configured to receive and store an alignment trigger value;

a comparator connected to receive the count value as an input from the counter and the alignment trigger value as an input from the storage cell, the comparator configured to compare the input from the counter to the input from the storage cell, the comparator further configured to send an output signal from an output port upon equivalence of the input from the counter and the input from the storage cell; and

alignment circuitry connected to receive the output signal from the comparator, the alignment circuitry configured to generate and transmit an alignment signal through an initiator transceiver to a target transceiver in response to receipt of the output signal from the comparator.

2. An apparatus for controlling an alignment signal transmission in an electronic communication process as recited in claim 1, further comprising:

a user interface defined to enable setting of the alignment trigger value in the storage cell, wherein the alignment trigger value can be set to any integer value compatible with the storage cell configuration.

3. An apparatus for controlling an alignment signal transmission in an electronic communication process as recited in claim 1, further comprising:

a reset link defined to transmit the output signal from the comparator to a reset port of the counter, wherein the counter is configured to restart a counting operation upon receipt of the output signal at the reset port.

4. An apparatus for controlling an alignment signal transmission in an electronic communication process as recited in claim 3, wherein the alignment circuitry includes a delay circuit defined to delay transmission of the alignment signal to compensate for a latency associated with resetting the counter.

5. An apparatus for controlling an alignment signal transmission in an electronic communication process as recited in claim 1, wherein the clock signal associated with the counter is also associated with the initiator transceiver.

6. An apparatus for controlling an alignment signal transmission in an electronic communication process as recited in claim 1, wherein the alignment trigger value is defined to represent a number of transmission units to be transmitted between each alignment signal transmission.

7. An apparatus for controlling an alignment signal transmission in an electronic communication process as recited in claim 1, wherein the electronic communication process is performed in accordance with one of a Serial Attached SCSI (SAS) protocol and a Serial AT Attachment (SATA) protocol, the transmission unit is defined as a dword, and the alignment signal is defined as one of an ALIGN(0) primitive, an ALIGN(1) primitive, an ALIGN(2) primitive, an ALIGN(3) primitive, a

NOTIFY(ENABLE SPINUP) primitive, a NOTIFY(RESERVED 0) primitive, a NOTIFY(RESERVED 1) primitive, a NOTIFY (RESERVED 2) primitive.

8. An apparatus for controlling an alignment signal transmission in an electronic communication process as recited in claim 7, wherein each of the initiator transceiver and the target transceiver is defined as a phy.

9. A method for controlling alignment signal transmission in an electronic communication process, comprising:

selecting an alignment trigger value;

operating a counter to sequentially modify a count value in accordance with an associated clock signal; and

transmitting an alignment signal in place of a transmission unit when the count value is equal to the alignment trigger value.

10. A method for controlling alignment signal transmission in an electronic communication process as recited in claim 9, further comprising:

providing a user interface to enable selection of the alignment trigger value.

11. A method for controlling alignment signal transmission in an electronic communication process as recited in claim 9, wherein the alignment trigger value can be any value necessary to ensure compatibility between the initiator transceiver and the target transceiver.

12. A method for controlling alignment signal transmission in an electronic communication process as recited in claim 9, further comprising:

operating a comparator to compare the count value to the alignment trigger value.

13. A method for controlling alignment signal transmission in an electronic communication process as recited in claim 12, further comprising:

using an output signal from the comparator to determine when the count value is equal to the alignment trigger value.

14. A method for controlling alignment signal transmission in an electronic communication process as recited in claim 9, further comprising:

transmitting a reset signal to the counter when the count value is equal to the alignment trigger value, the reset signal causing the counter to restart.

15. A method for controlling alignment signal transmission in an electronic communication process as recited in claim 14, wherein transmitting the alignment signal in place of the transmission unit is delayed to accommodate a latency introduced by transmitting the reset signal and causing the counter to restart.

16. A method for controlling alignment signal transmission in an electronic communication process as recited in claim 9, wherein the electronic communication process is performed in accordance with one of a Serial Attached SCSI (SAS) protocol and a Serial AT Attachment (SATA) protocol.

17. A method for controlling alignment signal transmission in an electronic communication process as recited in claim 16, wherein each of the initiator transceiver and the target transceiver is a phy.

18. A computer readable media containing program instructions for controlling alignment signal transmission in an electronic communication process, comprising:

program instructions for selecting an alignment trigger value;

program instructions for sequentially modifying a count value; and

program instructions for transmitting an alignment signal in place of a transmission unit when the count value is equal to the alignment trigger value.

19. A computer readable media containing program instructions for controlling alignment signal transmission in an electronic communication process as recited in claim 18, further comprising:

program instructions for providing a user interface to enable selection of the alignment trigger value.

20. A computer readable media containing program instructions for controlling alignment signal transmission in an electronic communication process as recited in claim 18, wherein the alignment trigger value can be any value necessary to ensure compatibility between the initiator transceiver and the target transceiver.